

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
31 January 2002 (31.01.2002)

PCT

(10) International Publication Number  
**WO 02/09212 A1**

(51) International Patent Classification<sup>7</sup>: H01M 2/18, 4/86, 4/88, 6/10, 6/44

(71) Applicant: MICROCELL CORPORATION (US/US); 909 Capability Dr., Suite 2100, Raleigh, NC 27606-3870 (US).

(21) International Application Number: PCT/US01/23220

(72) Inventor: ESHRAGUI, Ray; 105 Scots Fir Ln., Cary, NC 27511 (US).

(22) International Filing Date: 23 July 2001 (23.07.2001)

(25) Filing Language:

English

(26) Publication Language:

English

(74) Agent: HULTQUIST, Steven, J.; Intellectual Property/Technology Law, P O Box 14329, Research Triangle Park, NC 277709 (US).

(30) Priority Data:

09/625,219	24 July 2000 (24.07.2000)	US
09/624,303	24 July 2000 (24.07.2000)	US
09/621,713	24 July 2000 (24.07.2000)	US
09/621,228	24 July 2000 (24.07.2000)	US
09/624,070	24 July 2000 (24.07.2000)	US
09/625,218	24 July 2000 (24.07.2000)	US

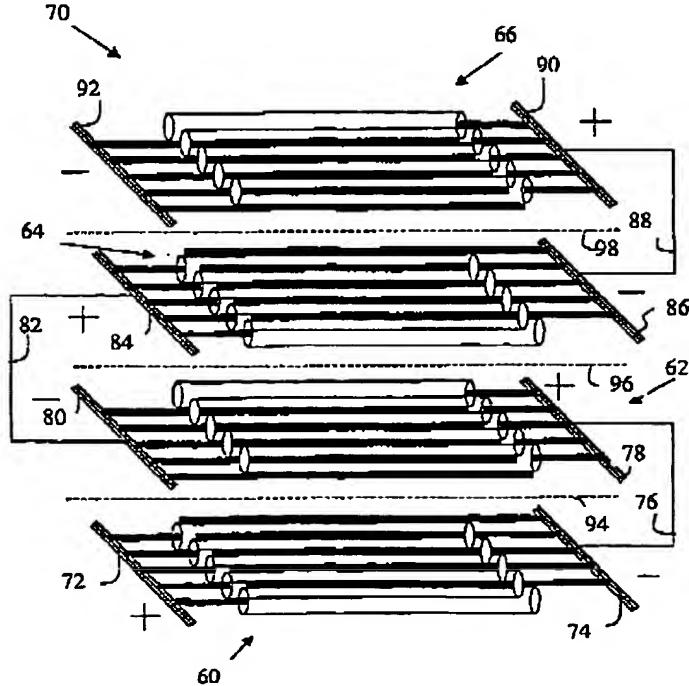
(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

*[Continued on next page]*

(54) Title: MICROCELL ELECTROCHEMICAL DEVICES AND ASSEMBLIES, AND METHOD OF MAKING AND USING THE SAME



**WO 02/09212 A1**



(57) Abstract: Microcell structures and assemblies are efficiently utilized for electrochemical generation/conversion of energy. The microcell structures of the invention are readily constructed from discrete fibrous microcell elements that are fabricated in sheet form (60, 62, 64, 66) and assembled into layered, sub-bundled and bundled conformations that produce high voltage, high power density outputs in applications such as fuel cell and battery systems.